Questions and Answers Regarding the 2010 Designation of Bull Trout Critical Habitat

Primary Constituent Elements

Q: Are the Primary Constituent Elements (PCEs) of bull trout critical habitat defined differently than in the 2005 final rule?

A: The following table displays changes in the definitions of PCEs between the 2005 and the 2010 final rules. The bolded text has been added, and the red text has been deleted.

October 18, 2010, Final Rule	September 26, 2005, Final Rule
(1) Springs, seeps, groundwater sources, and subsurface water **connectivity (hyporheic flows)** to contribute to water quality and quantity **and provide thermal refugia.**	**(5)** Springs, seeps, groundwater sources, and subsurface water to contribute to water quality and quantity **as a cold water source**
(2) Migration habitats with minimal physical, biological, or water quality impediments between spawning, rearing, overwintering, and **freshwater and marine** foraging habitats, including **but not limited to** permanent, partial, intermittent, or seasonal barriers.	**(6) Migratory corridors** with minimal physical, biological, or water quality impediments between spawning, rearing, overwintering, and foraging habitats, including intermittent or seasonal barriers **induced by high water temperatures or low flows**
(3) An abundant food base, including terrestrial organisms of riparian origin, aquatic macroinvertebrates, and forage fish.	**(7)** An abundant food base including terrestrial organisms of riparian origin, aquatic macroinvertebrates, and forage fish.
(4) Complex **river,** stream, **lake, reservoir, and marine shoreline aquatic environments, and processes that establish and maintain these aquatic environments,** with features such as **large wood,** side channels, pools, undercut banks **and substrates**, to provide a variety of depths, **gradients**, velocities, **and structure**.	**(2)** Complex stream **channels** with features such as **woody debris**, side channels, pools, and undercut banks to provide a variety of depths, velocities, and **instream structures**
(5) Water temperatures ranging from 2 to 15 **degrees Celsius (**°C**)** (36 to 59 **degrees Fahrenheit (**°F**))**, **with adequate thermal refugia available for temperatures that exceed the upper end of this range. Specific temperatures within this range will** vary depending on bull trout life-history stage and form; geography; elevation; diurnal and seasonal variation; shade, such as that provided by riparian habitat; **streamflow;** and local groundwater influence.	**(1)** Water temperatures **that support bull trout use. Bull trout have been documented in streams with temperatures from 32 to 72 [deg]F (0 to 22 [deg]C) but are found more frequently in temperatures** ranging from 36 to 59 [deg]F (2 to 15 [deg]C). **These temperature ranges may** vary depending on bull trout life history stage and form, geography, elevation, diurnal and seasonal variation, shade, such as that provided by riparian habitat, and local groundwater influence. **Stream reaches with temperatures that preclude any bull trout use are specifically excluded from designation**

(6) In spawning and rearing areas, substrate of sufficient amount, size, and composition to ensure success of egg and embryo overwinter survival, fry emergence, and young-of-the-year and juvenile survival. A minimal amount of fine **sediment, generally ranging in size from silt to coarse sand, embedded in larger substrates, is characteristic of these conditions. The size and amounts of fine sediment suitable to bull trout will likely vary from system to system.**	**(3)** Substrates of sufficient amount, size, and composition to ensure success of egg and embryo overwinter survival, fry emergence, and young-of-the-year and juvenile survival. **This should include** a minimal amount of fine **substrate less than 0.25 inch (0.63 centimeter) in diameter**.
(7) A natural hydrograph, including peak, high, low, and base flows within historic and seasonal ranges or, if **flows are controlled**, **minimal flow departure from a natural hydrograph.**	**(4)** A natural hydrograph, including peak, high, low, and base flows within historic ranges or, if **regulated, currently operate under a biological opinion that addresses bull trout, or a hydrograph that demonstrates the ability to support bull trout populations by minimizing daily and day-to-day fluctuations and minimizing departures from the natural cycle of flow levels corresponding with seasonal variation**
(8) **Sufficient** water quality and quantity such that normal reproduction, growth, and survival are not inhibited.	(8) **Permanent** water of sufficient quantity and quality such that normal reproduction, growth, and survival are not inhibited.
(9) Sufficiently low levels of occurrence of nonnative predatory (e.g., lake trout, walleye, northern pike, smallmouth bass); interbreeding (e.g., brook trout); or competing (e.g., brown trout) species that, if present, are adequately temporally and spatially isolated from bull trout.	

Q: PCE 3 is defined in the final rule as: “An abundant food base, including terrestrial organisms of riparian origin, aquatic macroinvertebrates, and forage fish.” How is "abundant" determined, and at what scale?

A: The text on page 63929 of the final rule states: “Habitat must provide the necessary aquatic and adjacent terrestrial conditions to harbor and maintain prey species in sufficient quantity and diversity to meet the physiological requirements necessary to maintain bull trout populations. Therefore, an abundant food base, including a broad array of terrestrial organisms of riparian origin, aquatic macroinvertebrates, and/or forage fish, supports individual and population growth and allows for normal bull trout behavior.”

The rule also addresses specific habitat conditions and types of activities that would either serve to enhance or reduce an abundant forage base for bull trout. The baseline

condition of forage species can be inferred from available information on habitat conditions influencing the abundance of bull trout forage species. Forage base abundance can't often be measured but can be inferred by habitat conditions. When sufficient data on the current condition of forage species are lacking, the effects of a proposed action to the bull trout's forage base can be evaluated on the basis of how the proposed action is likely to affect habitat conditions supporting those species.
An adverse effect determination to this PCE would be warranted if a proposed action is likely to measurably reduce the capability of the affected critical habitat to support an abundant forage base for bull trout or is likely to maintain a degraded forage base (e.g., clearing bank vegetation around bank protection structures) for individual bull trout at the scale of the action area taking into account the carrying capacity of the affected habitat based on site specific conditions.

Q: PCE 4 is defined, in part, as: "Complex river, stream, lake, reservoir, and marine shoreline aquatic environments, and processes that establish and maintain these aquatic environments…" On page 63934, the final rule states "Marine nearshore habitats within the Olympic Peninsula and Puget Sound critical habitat units contain only a subset of the identified physical or biological features for bull trout (PCEs 2, 3, 5, and 8)." Could PCE 4 have been included in the parenthetical text?

A: Yes. PCE 4 is clearly defined to include marine shoreline habitats and could have been included in the parenthetical text referenced above on page 63934 of the final rule.

Q: On page 63934 of the final rule the text states: "Lakes and reservoirs within these units also contain most of the physical or biological features necessary to support the bull trout, other than those associated with PCEs 1, 4, and 6." Could PCE 4 been included in the discussion on page 63934?

A: Yes. PCE 4 is clearly defined to include lake and reservoir habitats and could have been included in the text referenced above on page 63934.

Q: PCE 5 addresses bull trout water temperature needs throughout its range, and therefore, includes all areas of use, not just breeding habitat. However, the text on page 63934 of the final rule suggests the temperature PCE only applies in spawning and rearing habitat: "Three of the mainstem river [critical habitat] units in the Columbia River and Snake River basins contain most of the physical or biological features necessary to support the bull trout's particular use of that habitat, other than those associated with PCEs 5 and 6, which relate to breeding habitat." Please clarify.

A: PCE 5 does address bull trout water temperature needs throughout its range, including mainstem river habitat in the Columbia and Snake River basins. Temperature requirements for the bull trout vary depending on the type of use and location, and so will vary geographically among and between spawning and rearing habitat and foraging, migration and overwintering habitat.

The Role of Habitat not Designated as Critical Habitat

Q: By not designating some areas as critical habitat, are we implying these areas are not needed (i.e., not important) to recover the bull trout?

A: No. As stated on page 63902 of the final rule: "A critical habitat designation does not signal that habitat outside the designated area is unimportant or may not be required for recovery of the species. Areas that are important to the conservation of the species, but are outside the critical habitat designation, will continue to be subject to conservation actions under the Act." In addition, proposed Federal actions affecting bull trout occupying these areas will continue to be subject to compliance with section 7(a)(2) of the ESA under the jeopardy standard.

Reinitiation of Consultation for Ongoing Actions

Q: When/how should we address reinitiation of consultation on an ongoing action so that the Federal action agency can ensure the ESA section 7(a)(2) standard is met for bull trout critical habitat?

A: We should reach out to the Federal agencies now and ask them to determine if reinitiation on a particular action is warranted and to prioritize the order of those actions that warrant reinitiation. Such prioritization is the key to dealing with the likely substantial workload. Once we know what those priorities are, we can then discuss the most effective and efficient way to complete the consultations.

A reinitiated formal consultation is treated as a new consultation, although relevant information and analyses from the original consultation that reflect best available information may be relied upon and incorporated into the new biological opinion by reference and summary (or copying and pasting), as appropriate.

Q: How does a Federal agency determine whether to reinitiate consultation on an ongoing action?

A: As set forth in 50 CFR 402.16 of the implementing regulations for section 7 of the ESA, "Reinitiation of formal consultation is required and shall be requested by the Federal agency or by the Service, where discretionary Federal involvement or control over the action has been retained or is authorized by law and: (a) If the amount or extent of taking specified in the incidental take statement is exceeded; (b) If new information reveals the effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (c) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion; or (d) If a new species is listed or critical habitat designated that may be affected by the identified action."

Q: Will the FWS prioritize timely completion of work on reinitiated consultations due to the 2010 bull trout critical habitat designation over other required workload?

A: The FWS will work with Federal action agencies to determine workload priorities and staffing needs, and will make our best effort to provide timely reviews. However, keep in mind that careful planning and communication will be required to ensure that all parties are aware of other high priority commitments for the involved agencies.

Q: A number of the Federal agencies have expressed concern about consistent application of the ESA section 7 process for bull trout critical habitat consultations. How does the FWS plan to ensure consistency among field offices on bull trout critical habitat consultations?

A: We have two principal mechanisms in place to ensure such consistency:

1. Pursuant to Regional policy, all biological opinions must include a section clearly describing the analytical framework for the jeopardy and the destruction/adverse modification determinations, as appropriate. The framework for the latter determination is consistent with national policy on this matter, as set forth in the Director's December 9, 2004, memorandum. These frameworks establish the information that will be presented in the Status of the Species or Critical Habitat, Environmental Baseline, Effects of the Action, Cumulative Effects, and Conclusion sections of the biological opinion.

2. The FWS has established a Bull Trout Consultation Coordination Team, which is comprised of staff from field offices in Regions 1, 6, and 8, and Region 1 and 6 regional offices. The primary role of the Team is to promote the consistent application of the section 7 process and policy for bull trout-related consultations in coordination with field office line managers and the Bull Trout Board of Directors. The team is currently preparing a number of tools (this Q&A being one) that should enhance the consistency, efficiency, and effectiveness of bull trout-related consultations.

Exclusion of Man-Made Structures

Q: On page 63973 of the final rule, the text includes the following discussion: "(4) Critical habitat does not include manmade structures…and the land or waterway on which they are located …." Does the phrase "waterways on which they are located" exclude waters that are adjacent to structures?

A: No. The exclusion is limited to the lands covered by man-made structures that lack or do not support physical or biological features for the bull trout in the "area occupied by the actual structure" (= waterway on which they are located). Furthermore, operations and maintenance of man-made structures may affect adjacent, upstream, or downstream critical habitat. These effects to critical habitat, therefore, would need to be assessed and consultation completed, as appropriate.

Q: If part or all of a man-made structure falls away or is removed, does the area occupied by the original structure at the time of designation remain excluded?

A: No. The exclusion remains applicable only as long as the man-made structure that was present at the time of listing remains present.

Q: Is an existing floating or pile-supported dock excluded from critical habitat?

A: Existing structures (e.g., pile-supported docks, floating docks, submerged pipelines, etc.) are excluded at the point(s) of attachment to land and to the extent that they physically displace the water column.

Q: Can management of excluded structures affect adjacent critical habitat?

A: Yes. As is stated on page 63926 of the final rule: "…actions that may destroy critical habitat could occur on lands adjacent to waterbodies." Areas that are not critical habitat, such as uplands and man-made structures, can support the intended function of adjacent PCEs. Proposed Federal actions involving the operation and maintenance of existing structures (such as an overhanging sea wall, dock, or pier) that may directly or indirectly affect one or more PCEs of bull trout critical habitat in areas immediately adjacent to the structure would trigger a requirement to comply with section 7 of the ESA.

Extent of Critical Habitat

Q: What is the lateral extent of the critical habitat designation in fresh water?

A: As stated on page 63906 of the final rule: "Specifically, the lateral extent of critical habitat in lakes and reservoirs is defined by the perimeter of the waterbody as mapped on standard 1:24,000 scale topographic maps, and the Service assumes in many cases this is full pool level. Defining the lateral limits in reservoirs and lakes in this manner is consistent with the approach taken for streams. Within streams, the critical habitat designation includes the stream channels within the designated stream reaches with the lateral extent defined by the bankfull elevation on one bank to the bankfull elevation on the opposite bank. In cases where the bankfull elevation is not evident on either bank, the ordinary high-water line determines the lateral extent of critical habitat." For areas where only one side of the waterbody is designated, the mid-line of the stream represents the lateral extent of designated critical habitat.

Q: Is the lateral extent of critical habitat designed to adjust to lake and reservoir fluctuations that result from existing water management activities?

A: No. The critical habitat designation is based on the full pool elevation of a lake or reservoir. For details see page 63906 of the final rule.

Q: If the river (or marine shoreline) is changed due to erosion or landslides, does the critical habitat designation move with it?

A: Yes. As discussed in the final critical habitat rule, we did not map specific coordinates for the width of critical habitat units. Stream reaches are bounded by the lat-

long coordinates of the start point and end point of the reach only. See, for example, pages 63975 to 63976 of the final rule. This allows the stream bed to migrate and meander naturally and still be predictably within designated critical habitat.

Analytical Framework

Q: The final critical habitat rule includes a statement regarding six new draft Recovery Units. Do we now use these six new draft Recovery Units for the jeopardy analysis, in part, or continue to use the Interim Recovery Units (old DPSs) described in the final coterminous U.S. listing rule for the bull trout?

A: Until a final Recovery Plan for the bull trout is published, the Interim Recovery Units established in the 1999 final listing rule for the bull trout remain in effect for purposes of completing jeopardy analyses. Note, however, that jeopardy determinations are made at the scale of the listed species, not individual recovery units.

Q: Do Recovery Units apply to critical habitat analyses under section 7?

A: No. In the section 7 process, Recovery Units are applicable only to the listed species for purposes of the jeopardy analysis. We will evaluate Critical Habitat Units for the purposes of the destruction and adverse modification analysis.

Q: What is the scale of analysis for making the destruction/adverse modification determination relative to bull trout critical habitat?

A: The scale of analysis is outlined in detail in the "Application of the Jeopardy and Adverse Modification Standards" section of the final rule on page 63943. The destruction/adverse modification determination is made at the scale of the designated critical habitat overall, but the analysis involves evaluations at the unit scale as well.

Q: Is the scale of analysis different for bull trout jeopardy analyses versus destruction/adverse modification of critical habitat analyses?

A: Yes. Jeopardy determinations are always made at the scale of the listed species. Adverse modification analyses are always made at the scale of the entire designated critical habitat unless the final rule defines a smaller scale for that analysis.

In the case of bull trout critical habitat, this means that the destruction and adverse modification determination will be evaluated at the scale of the entire designation. In the case of the bull trout, this means that the jeopardy determination will be made at the scale of the U.S. coterminous population.

Effect Determinations

Q: What constitutes a measureable effect to a PCE of bull trout critical habitat? How small an effect is insignificant/discountable?

A: Effects to PCEs should be considered within the context of the relevant biological requirements of the bull trout relative to the context of the PCE (e.g., foraging, spawning, or passage). In other words, evaluate the potential for effects to a PCE through the lens of the relevant bull trout biology that was the basis for defining the PCE. Say, the PCE has to do with foraging. For purposes of an effect determination, evaluate the likelihood of the proposed action affecting the PCE's function to adequately support foraging bull trout.

As defined in the *Endangered Species Consultation Handbook* (FWS and NMFS 1998; pg. xv): "Insignificant effects relate to the size of the impact and should never reach the scale where take is likely to occur. Discountable effects are those extremely unlikely to occur. Based on best judgment, a person would not: (1) be able to meaningfully measure, detect, or evaluate insignificant effects; or (2) expect discountable effects to occur." So, in the context of critical habitat, an insignificant or discountable effect determination would be warranted in cases where the proposed action is not likely to measurably reduce the likelihood of the PCE to function at a level that adequately supports bull trout foraging.

Q: What is meant by "functionally established" and "periodically" in the phrase on page (insert page number) of the final rule, "…retain those physical or biological features that relate to the current ability for the primary constituent elements to be functionally established or the area to periodically support the species?"

A: At the time of designation, it is not uncommon for portions of critical habitat to be degraded or even not functional relative to supporting recovery of the listed species. However, these areas were designated in recognition that they retain the capability to reestablish the ecological functions needed to support recovery of the listed species. The term "functionally established" relates to the condition of the PCEs in that context. The use of the term "periodically" in this context was intended to address physical and biological features that are seasonal or otherwise periodic in nature.

Q: What is the conservation role of unoccupied critical habitat?

A: As is stated on page 63902 of the final rule: "…we were able to identify several habitats not occupied at the time of listing that we believe are essential for restoring functioning migratory bull trout populations based on currently available scientific information. These areas often include lower main stem river environments that can provide seasonally important migration habitat for bull trout. This type of habitat is essential in areas where bull trout habitat and population loss over time necessitates reestablishing bull trout in currently unoccupied habitat areas to achieve recovery."

Q: Is it ever appropriate to make a "likely to adversely affect" determination relative to the effects of a proposed Federal action on bull trout critical habitat when effects to critical habitat PCEs will occur at times when the species will not be present in the affected area?

A: As discussed above, effect determinations should be done through the lens of bull trout biological needs associated with the particular PCE. Although actual bull trout presence in critical habitat is not relevant to an effect determination for a PCE, consideration of the relevant biological requirements of the bull trout (on which the PCE is based) is relevant. In the scenario described above, it would be an appropriate effect determination if the effect to the PCE is likely to extend into the time period when bull trout are dependent upon the affected PCE(s) of the critical habitat to successfully complete its life cycle. If the effect is temporary and only likely to occur at times when bull trout do not need to be supported by the PCE(s) of the critical habitat, then a not likely to adversely affect determination would be warranted.

Climate Change

Q: Do climate change effects to critical habitat need to be addressed in biological opinions? Does the Service's "Green House Gas" (GHG) policy as described in the polar bear final listing rule and a May 14, 2008, memo from the Director entitled "Expectations for Consultations on Actions that Would Emit Greenhouse Gases," establish limitations on climate change analyses in BiOps?

A: Climate change can be a factor influencing the condition of critical habitat. In that regard, it should be considered and discussed in the "Status of Critical Habitat" and "Environmental Baseline" sections of biological opinions, as appropriate. The above policy and rule affirm that for purposes of establishing that a proposed Federal action is likely to cause a GHG-related effect on a listed species or critical habitat, we must present a reasoned basis, based on best available information, linking the proposed action to a specific GHG-related effect on the species or critical habitat. The above policy and rule acknowledge that currently we do not have the technical capability to do that. If at some point in the future we have such technical capability, and establish that cause and effect relationship then we can make such effect findings.

Q: How should climate change be addressed at the action area scale?

A: As always, use best available quantitative and qualitative information to inform that analysis. If specific information (e.g., climate trend data, etc.) is lacking for an action area, you should more generally consider the likely influences of climate-related impacts on the condition of bull trout critical habitat at the scale of the action area (e.g., likely changes in the hydrograph and seasonal water temperatures). As always, use the best available science for the action area and provide appropriate qualifiers and inferences based on more general data sets.